

PRELIMINARY ENGINEERING REQUIREMENTS
for
DRINKING WATER
SRF Projects

Project Name

Designated Signatory

Phone

Engineer

Phone

The **PRELIMINARY ENGINEERING REPORT (PER)** is a document that provides the information necessary for the Department (**IDEM**) to determine the technical, economic and environmental adequacy of the proposed water distribution system improvements. **IDEM** may request additional information to complete a **PER**.

This document is based on the State Revolving Loan Fund rules in effect on August 1, 1999. Because the rules and requirements for SRF projects are subject to change, you should contact IDEM before submitting your PER and application to be sure that you are complying with current requirements. All applications will be reviewed in accordance with the provisions of IC 13-18-13, IC 13-18-21 and 327 IAC 13, as applicable. Approval of a PER by the SRF section is for planning purposes only and is subject to all program requirements.

* ***ALL* CORRESPONDENCE/REVISIONS *MUST* BE DATED, 3-HOLE PUNCHED, & TRANSMITTED BY THE AUTHORIZED REPRESENTATIVE/DESIGNATED SIGNATORY**

* **Submit 3 copies of the PER in 3-ring binders to:**

**BRUNO PIGOTT
STATE REVOLVING FUND
IDEM OFFICE OF WATER QUALITY
P.O. BOX 6015
INDIANAPOLIS, INDIANA 46206-6015**

* **Add Graphs/Tables where applicable**
See ATTACHMENTS following the document.

* **Include a Table of Contents, List of Graphics, List of Tables and List of Appendices**

PREFACE

Provide a brief SUMMARY of the project. (A few paragraphs)

CHAPTER 1 PROJECT LOCATION

- * Describe the 20-year Study Area, the existing and 20-year Service Area, and the Project Area.
- * Identify the USGS Quadrangle map(s) and Sections, Townships and Ranges involved.
- * Provide **maps** (*USGS Quadrangle*) displaying:
 1. Study area
 2. Existing service & 20-year service areas
 3. Project areas (proposed water line routes, wells, tanks, etc.)
- * Provide a Description of the project area. Also include a statement indicating whether the entire project is being constructed within the city/county/town's right-of-way. If it is not, the applicant will need to provide evidence that it has, or will have by a mutually agreeable date, the required property rights prior to IDEM's issuance of a construction permit.

Note: All graphics except schematics must display *North arrow & Bar Scale*

CHAPTER 2 CURRENT SITUATION

- * Describe the existing Water distribution system, water treatment plant (WTP), wells, pumps, etc. (included in the Preliminary Design Summary).
- * Provide Layouts/Site **maps** of existing distribution system, WTP or other applicable site(s).
- * Provide a description of the current condition of the water treatment plant, distribution system, storage facilities and projected twenty (20)-year condition, in order to establish the **PROJECT NEED**.
- * Document system problems based on:
 1. *Direct* evidence of public health hazards (such as E. coli, bacteriological tests, etc.)
 2. *Indirect* evidence establishing need/failure (such as storage, system capacity, terrain of water main, etc.)
 3. Letter from County Health Department
- * Distribution Systems problems/needs
 1. Operational problems
 - a. Old water mains
 - b. Tanks not high enough
 - c. Dead ends
 - d. System has not been flushed for more than 6 months
 2. Rehabilitation/Replacement needs
 - a. WTP, storage tank, etc.
 - b. Inadequate capacity of pipes
 - c. Facilities exceeding useful life
 3. Document:
 - a. Connection Ban
 - c. Agreed Order (signed/pending)
 - d. Warning of Non-Compliance (WONC)
 - e. Other
- * WTP problems/needs
 1. Operational problems
 - a. Operating non-stop for 24 hours
 - b. NPDES Permit Violations
 2. Renovation/Replacement/Upgrade/Expansion
 - a. Facilities exceeding useful life
 - b. Other
 3. Document (if applicable):
 - a. Notice of Violation (NOV)
 - b. Warning of Non-Compliance (WONC)
 - c. Agreed Order (AO) [signed/pending]
 - d. *New* NPDES Requirements [w/Schedule of Compliance]
 - e. Connection Ban Early Warning

- * Provide tables for Current Flows & Backwash Water
 - T *design flow (mgd or gpd)*
 - T *peaking factor*
 - T *peak design flow (mgd or gpd)*

- * Significant users
 1. Commercial
 2. Industrial
 3. Institutional (schools, jails, hospitals, etc.)
 4. Residential
 5. State/other facilities

NOTE: *Certify that the existing water treatment system and storage facilities have and will have adequate capacity to satisfy demand & treat raw water within the state requirements during the 20-year study period.*

*If the applicant cannot certify, then the proposed project should address the problems in the known problem areas; otherwise, the applicant must conduct appropriate distribution system studies in order to identify and address the problems. The **PER** should include information on the distribution system studies done, including the recommendations and results.*

CHAPTER 3 FUTURE SITUATION

- * Current Population

- * Population Projections (20-year) w/explanation for reasonable growth, *based upon*:
 1. Census data
 2. Building permits
 3. Current development trends
 4. Active Regional Planning Commission
 5. Other

- * Tables for proposed (**Refer to Table IV**)
 1. Design (20-year) flows
 - a. Domestic
 - b. Commercial/Institutional
 - c. Industrial
 - d. Average design flow mgd
 - e. Peaking factor
 - f. Peak hourly flow
 - g. Peak design flow

CHAPTER 4 EVALUATION of ALTERNATIVES

- * Identify a range of *feasible* alternatives
 - * Description of alternatives considered, *including*:
 1. No action
 2. Optimum operation of existing facility
 3. Distribution System Rehabilitation/Replacement
 4. WTP
 - a. Upgrade/Expansion
 - b. Regionalization potential
 5. New WTP
 - a. Regionalization potential
 - b. Alternative WTP sites
 - c. Treatment alternatives
 6. Sludge Handling & Disposal
 7. Phasing
 - * Rationale for selection of Recommended Alternative
 1. Monetary
 2. Technical
 3. Reliability
 4. Implementability
 5. Environmental Impacts
-

CHAPTER 5 EVALUATION of ENVIRONMENTAL IMPACTS

- * Discuss *NEGATIVE IMPACTS* only.
Follow the guidance/information provided by Max Henschen.
- * **Note:** *Projects which propose capacity increases of treatment plants or lines must include the "Induced Impacts" language provided in the PER Environment Chapter: Language & Procedures.*
- * The PER **must** discuss **direct** (primary impacts due to construction, operation & maintenance of the treatment /collection system) and **indirect** (secondary or induced impacts made possible by the project) impacts of the feasible alternatives (including the no-action alternative) on:
 1. Prime Farmland (any undeveloped land may be prime farmland); discuss geology/soils' effects on the project.
 2. Air Quality (dust, odor, etc.)
 3. Groundwater
 4. Sole Source Aquifer
 5. Drinking Water supplies
 6. 100-year Floodplains
 - (a) Displacement due to structures sited in the floodplain
 - (b) Cannot be used for borrow or fill w/o DNR approval
 - (c) Operability & Accessibility of the facilities during 100-year floods
 7. Wetlands

Wetlands **must** be avoided. Impacts to wetlands, especially forested wetlands, have caused significant delays and have required redesign of facilities and/or change of location.
 8. Surface Waters
 - (a) Natural & Scenic Rivers (310 IAC 4)
 - (b) Exceptional Use Streams (IAC 327 2-1-11(b))
 - (c) Outstanding State Resources (IAC 327 2-1-2(3))
 9. Federally & State-listed Endangered & Non-endangered plant & animal species and their habitats.
 10. Historical / Architectural/Archeological sites

*Do **NOT** begin archaeological investigations w/o permit from DNR.*
 11. Open Space & Recreational opportunities
 12. National Natural Landmarks
- * Provide National Wetland Inventory maps & 100-year Floodplain (FEMA) maps with all proposed project elements (lines, structures, access roads, etc.), North arrow, & bar scale, *OR* incorporate wetlands & floodplain boundaries into a graphic of your design, showing all project elements.

- * Briefly discuss specific **mitigation measures** to be implemented by the political subdivision during the project construction/implementation phase in order to avoid or minimize the **negative environmental impacts**.
 - * Discuss the impacts, if any, on the **Lake Michigan coastal zone** (Lake County, Porter County, LaPorte County).
 - * Another environmental information document is needed if more than 5 years without project completion have passed since the PER was approved. 327 IAC 14-7-5(6)-(8)
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CHAPTER 6 SELECTED PLAN

- * Describe the Selected Plan components & processes.
 - * Discuss Phasing (if applicable).
 - * Include a completed *Preliminary Design Summary* (also provided on disk). (Be sure to use the COMPLETE form... do not remove parts that are not applicable. Simply leave them and enter "NA").
 - * Provide schematics/layouts/maps/hydraulic model of the proposed project or selected plan, *including* North arrow & bar scale (*not necessary* for schematics).
 - * Provide the *Project Component Costs* (*refer to TABLE II*) and the *Selected Plan Cost* (*refer to TABLE III*).
 - * Include a Project Schedule/Milestone dates for:
 1. Anticipated PER approval
 2. Plans & Specs submittal
 3. Plans & Specs approval
 4. Loan closing
 5. Initiation of construction
 6. Substantial completion of construction
 7. Initiation of operation
 - * Discuss Contract operations
 1. Lab work
 2. Land application
 3. Landfilling
 4. Other
-

CHAPTER 7 LEGAL, FINANCIAL & MANAGERIAL CAPABILITIES

- * Include the **2 required Resolutions** (*refer to ATTACHMENTS A & B*):
 1. Signatory Authorization
 2. PER Acceptance

 - * Include the completed *SRF Project Cost/Financing Information Form* (distributed by IDEM at the preplanning meeting & also *included as* **TABLE IV**)

 - * Include Letter(s) of intent from:
 1. Land owners
 2. Significant users (industries, nursing homes, etc., which might increase their usage over the 20-year planning period)

 - * Include Inter-local Governmental Agreement
(*This is only applicable if the water system is supplying or buying water from another system or town*).
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CHAPTER 8 PUBLIC PARTICIPATION

- * Include a copy of the Publisher's Affidavit from the newspaper with the Public Hearing notice
- * Have completed PER available for public review 14 days prior to Public Hearing
- * Include a Sign-in sheet of everyone who attended the hearing
- * Include a transcript (**verbatim, word-for-word record**) of the Public Hearing. IDEM cannot accept minutes or other paraphrasing of the Public Hearing(s)
- * Include *all written comments* submitted by the public, including comments submitted during the public hearing and during the 10-day period following the hearing. Also include any *response* to comments provided by or on behalf of the Loan Applicant. If there are no written comments, please include a statement saying so.
- * Provide prepared, self-sticking **Mailing Labels** for:
 1. Interested parties (those individuals, industries, groups, organizations who demonstrated an interest in receiving copies of the Environmental Assessment/Finding of No Significant Environmental Impact). Be sure to include everyone who attended the public hearing.
 2. County Drainage Board
 3. County Health Department
 4. Active Regional Planning Commission for the planning area
 5. Local media outlets (newspaper, radio, or T.V. station)

Note: Please include our DWSRF mailing code in the upper left corner of each label: 65-39 SRF

ATTACHMENTS

2 RESOLUTIONS

- A. Authorized Representative *Model*
- B. Acceptance of PER *Model*

TABLES

- I. MODEL FOR DESIGN TREATMENT PLANT FLOWS
- II. EST. CONSTRUCTION COSTS of the SELECTED ALTERNATIVE *Model*
- III. SELECTED PLAN COST SUMMARY *Model*
- IV. SRF PROJECT FINANCING INFORMATION *Model*

A.

MODEL SIGNATORY AUTHORIZATION RESOLUTION

WHEREAS, the (Political Subdivision) of _____, Indiana, herein called the community, has plans for a municipal water pollution control project to meet State and Federal regulations, such as the NPDES discharge limitations, and the community intends to proceed with the construction of such works:

WHEREAS, the (Political Subdivision) of _____, has adopted this Resolution dated _____.

NOW, THEREFORE, BE IT RESOLVED by the Council/Board, the governing body of said community, that:

1. _____ be authorized to make application for an SRF Loan and provide the Indiana Department of Environmental Management such information, data and documents pertaining to the loan process as may be required, and otherwise act as the authorized representative of the community.
2. The community agrees to comply with the Department of Environmental Management, State of Indiana and Federal requirements as they pertain to the SRF.
3. That two certified copies of the resolution be prepared and submitted as part of the community's Preliminary Engineering Report.

ADOPTED this _____ day of _____, 1999.

THE (POLITICAL SUBDIVISION) OF _____, INDIANA
BY AND THROUGH ITS COUNCIL/BOARD OF TRUSTEES

AUTHORIZED SIGNATORY

_____ BY: _____

ATTEST: _____

B.

MODEL PER ACCEPTANCE RESOLUTION

WHEREAS, the (POLITICAL SUBDIVISION) of _____ County, Indiana, has caused a Preliminary Engineering Report, PER, dated _____, to be prepared by the consulting firm of _____; and

WHEREAS, said plan has been presented to the public at a public hearing held _____, for their comments; and

WHEREAS, the (POLITICAL SUBDIVISION's) Board/Council finds that there was not sufficient evidence presented in objection to the recommended project in the Preliminary Engineering Report.

NOW, THEREFORE BE IT RESOLVED THAT:

The _____ Preliminary Engineering Report dated _____ be approved and adopted by the (POLITICAL SUBDIVISION's) Board/Council; and

5. That said PER be submitted to the Indiana Department of Environmental Management for review and approval.

Passed and adopted by the (POLITICAL SUBDIVISION's) Board/Council this _____ day of _____, at their regularly scheduled meeting.

President/Mayor

Member

Member

Member

Attest: _____

TABLE I

MODEL FOR DESIGN TREATMENT PLANT FLOWS

Domestic (D) _____

Commercial\
Institutional (C) _____

Industrial (I) _____



Total DCI _____

AVG. DESIGN FLOW _____

Peak DCI _____ (peaking factor = _____)

PEAK DESIGN FLOW _____

TABLE II

ESTIMATED CONSTRUCTION COSTS OF THE SELECTED ALTERNATIVE MODEL

Alternative:

Item	Quantity	Unit Cost	Total Cost
1) _____	_____	_____	_____
2) _____	_____	_____	_____
3) _____	_____	_____	_____
4) _____	_____	_____	_____
5) _____	_____	_____	_____
6) _____	_____	_____	_____
7) _____	_____	_____	_____
8) _____	_____	_____	_____
9) _____	_____	_____	_____
10) _____	_____	_____	_____
Total Construction Cost			_____

TABLE III**MODEL SELECTED PLAN COST SUMMARY**

Item	Total Cost
Non-Construction Costs	_____
Administrative and Legal	_____
Land & Rights-of-way Acquisition	_____
Relocation	_____
Engineering Fees	_____
Design	_____
Construction	_____
Other	_____
Project Inspection	_____
Costs Related to Plant Start-up	_____
<u>Non-Construction Subtotal</u>	<u>_____</u>
Construction and Equipment Subtotal	_____
Contingencies	_____
TOTAL PROJECT COST	<u><u>_____</u></u>

Table IV

DRINKING WATER SRF PROJECT FINANCING INFORMATION

1. Project Cost Summary

- a. Treatment System cost \$ _____
- b. Transmission/Distribution System cost \$ _____
- c. Water Storage cost \$ _____
- d. Subtotal Construction Cost \$ _____**
- e. Contingencies \$ _____
(should not exceed 10% of construction cost)
- f. Non-construction cost \$ _____
e.g., engineering/design services, field exploration studies, legal & administrative services, land costs (including capitalized costs of leased lands, ROWs, & easements), start-up costs (e.g., operator training, O&M manual, inspection).
- g. **Total Project Cost (lines d+e+f) \$ _____**
- h. **Balance of ineligible costs and other funding sources (see other side) \$ _____**

2. SRF Loan Amount (g-h) \$ _____

3. SRF interest rate (circle one)

DW SRF Interest Rate	User Rates (Over \$45)	User Rates (\$25 to \$45)	User Rates (Under \$25)
Tier III (MHI: under \$24,994)	2.9%	3.1%	3.3%
Tier II (MHI: \$24,994 to \$31,241)	3.6%	3.8%	4.0%
Tier I (MHI: over \$31,241)	4.1%	4.3%	4.5%

* Current MHI (which will be automatically changed after 2000 census data is available).

4. Annual OM&R costs: Current _____ Post-project _____
5. Avg. monthly residential water fee: Current _____ Post-project _____

(Continue on next page)

CALCULATIONS FOR LINE 1(H)

A. The following are not eligible for Drinking Water SRF reimbursements:

1. Materials & work done on private property \$ _____
2. Grant applications and income surveys done for other agencies (i.e., DOC, RDA, RECD, etc.) \$ _____
3. Any project designed to promote economic development and growth is ineligible. \$ _____
4. Expenses incurred as a part of forming RWDs, CDs, etc., or changing their boundaries, or other non-SRF District activities \$ _____
5. Costs for preparing Wellhead Protection Plans and other tasks unrelated to the SRF project \$ _____
6. Cleaning of equipment or other operation/maintenance activities. These items should have been maintained through routine operation, maintenance and replacement by the water system. \$ _____

7. Total Ineligible Costs \$ _____

B. Other funding sources (list other grant/loan sources & amounts)

1. Hook-on fees _____
2. Cash on Hand _____
3. _____
4. _____
5. _____
6. _____

7. Total Other Funding Sources \$ _____

C. Calculation of line 1(h):

Line 1(h) represents the sum of costs incurred for the project which cannot or won't be paid through SRF funding. They include any ineligible costs and any other grants and loans which offset the total SRF financing needs. Projects may have SRF-ineligible costs which will be paid through other funding sources. Use the following formula to determine the amount to report on line 1(h):

	\$ _____	Ineligible Items (line A(8) of this page)
+	\$ _____	Other funding sources (line B(7) of this page)
-	\$ _____	Amount of line B(7) to be applied toward SRF-ineligible items
=	\$ _____	Line 1(h) number to report to page 1